BLAUPUNKT

NAVIGATION

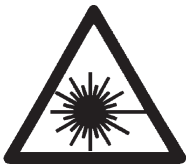
TravelPilot RNS 149
7 612 001 327

TravelPilot RNS 149 US
7 612 001 387

8 622 402 077 WG-KN 10/99

Schaltbild • Circuit diagram

CLASS 1
LASER PRODUCT



UNSICHTBARE LASERSTRAHLUNG
NICHT DEM STRAHL AUSSETZEN

LASERKLASSE 3B

(D) VORSICHT!

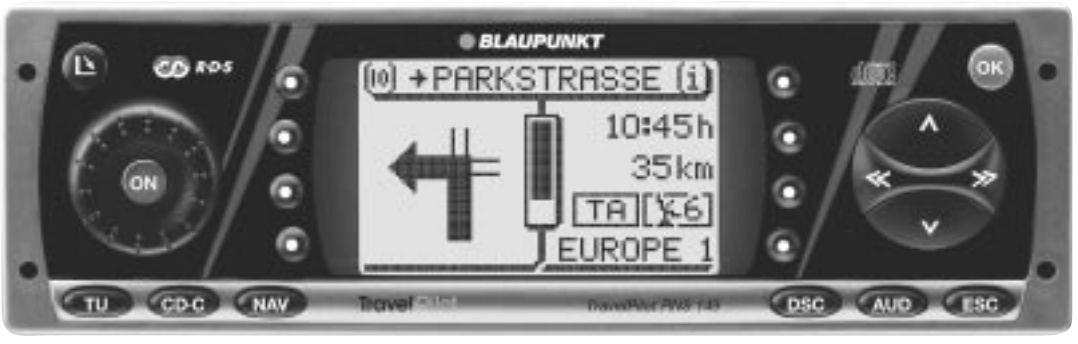
Das Gerät beinhaltet eine Laserkomponente! Im Servicefall nachfolgende Hinweise beachten:

- Das Gerät arbeitet mit unsichtbarem Laserstrahl. Bei geöffnetem Gerät tritt im Bereich des Plattenfaches Laserstrahlung aus.
- Nicht in den Strahl blicken.
- Unbeteiligte Personen vom Arbeitsplatz fernhalten.
- Der Betrachtungsabstand darf 13cm nicht unterschreiten. Kann dies nicht eingehalten werden, muß eine geeignete Laserschutzbrille getragen werden.

(GB) CAUTION!

This unit contains a laser component! For service observe the following important instructions:

- The unit operates with an invisible laser beam. When the cover is removed, near the disc compartment, invisible laser beams are apparent.
- Avoid direct eye contact with these beams.
- Keep other people away from the working place.
- The viewing distance should not be less than 13cm. If this distance cannot be ensured, use suitable laser safety goggles.



Inhaltsverzeichnis / Table of contents

Blockschaltbild 3

Grenzwerte 4

Layout Anschlußplatte 0529 A03 29
Layout GPS-Platte 8887 A04 V01.....46
Layout Gyro-Platte 0585 A02.....43
Layout Hauptplatte 0531 A05 .....21 - 25
Layout HF-Platte 0276 A04.....28
Layout Netzteil 0277 A13.....52
Layout Prozessorplatte 0849 A01.....41 - 42
Layout Schalterplatte 0530 A05.....49 - 50

Schaltbild Anschlußplatte 0529 A03 40
Schaltbild GPS-Platte 8887 A04 V01.....44 - 46
Schaltbild Gyro-Platte 0585 A02.....43
Schaltbild Hauptplatte 0531 A05
- CO-Prozessor / TIM .....13 - 14
- Digital-IC .....15 - 16
- Interface 19
- MCM-Modul .....10 - 12
- NF .....17 - 18
- Spannungsversorgung 20
- Verbindungen .....7 - 9

Schaltbild HF-Platte 0276 A04.....26 - 27
Schaltbild Netzteil 0277 A13 51
Schaltbild Prozessorplatte 0849 A01
- CPU .....31 - 33
- Interface 38
- NAVI-Sprache 37
- Speicher-Modul.....34 - 36
- Steuerung CD-ROM-Laufwerk.....39 - 40

Schaltbild Schalterplatte 0530 A05.....47 - 48

Spannungsversorgung (Diagramm) 5

SPI-Bus (Diagramm) 6

Block diagram 3

Circuit diagram Connector board 0529 A03.....40
Circuit diagram GPS board 8887 A04 V01 ...44 - 46
Circuit diagram Gyro board 0585 A02.....43
Circuit diagram Key board 0530 A05 .....47 - 48
Circuit diagram Main board 0531 A05
- Connections.....7 - 9
- MCM modul .....10 - 12
- CO processor / TIM.....13 - 14
- Digital IC .....15 - 16
- AF .....17 - 18
- Interface 19
- Power supply.....20

Circuit diagram Power board 0277 A13 51
Circuit diagram Processor board 0849 A01
- CPU .....31 - 33
- Memory modul.....34 - 36
- NAVI voice.....37
- Interface 38
- CD-ROM mechanism control.....39 - 40

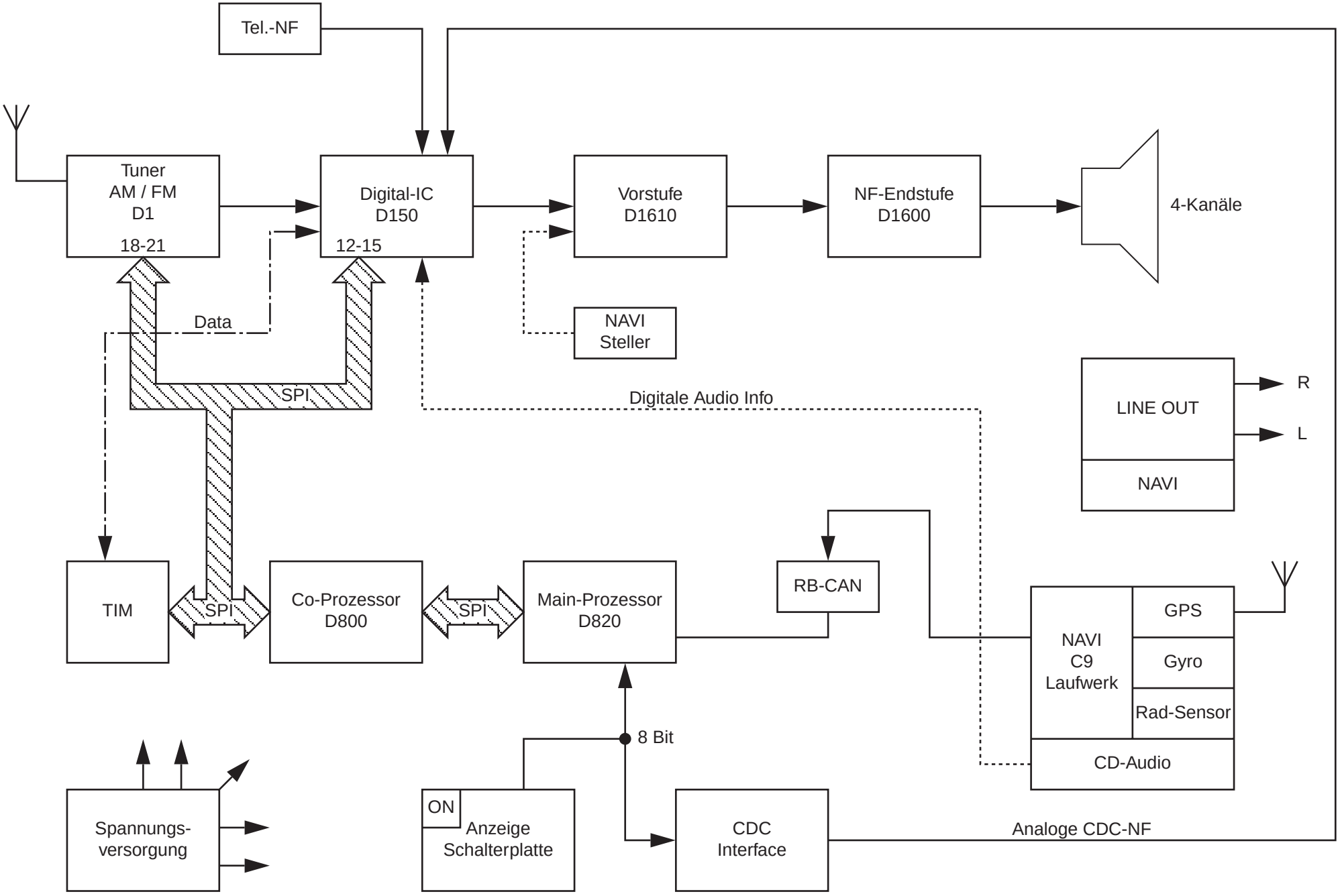
Circuit diagram RF board 0276 A04 .....26 - 27

Layout Connector board 0529 A03 29
Layout GPS board 8887 A04 V01 46
Layout Gyro board 0585 A02 43
Layout Key board 0530 A05 .....49 - 50
Layout Main board 0531 A05.....21 - 25
Layout Power board 0277 A13.....52
Layout Processor board 0849 A01 .....41 - 42
Layout RF board 0276 A04 28

Limiting value 4

Power supply (diagram) 5

SPI-Bus (diagram).....6


Tel.-NF
Tuner
AM / FM
D1
18-21
Digital-IC
D150
12-15
Vorstufe
D1610
NF-Endstufe
D1600
4-Kanäle
Data
NAVI
Steller
SPI
Digitale Audio Info
LINE OUT
R
L
NAVI
TIM
SPI
Co-Prozessor
D800
SPI
Main-Prozessor
D820
RB-CAN
NAVI
C9
Laufwerk
GPS
Gyro
Rad-Sensor
CD-Audio
8 Bit
Spannungs-
versorgung
ON
Anzeige
Schalterplatte
CDC
Interface
Analoge CDC-NF

Grenzwerte

Versorgungsspannungen

Folgende Tabelle gibt Auskunft, welche Spannungen, in welchen Toleranzbreietn und zu welchen Betriebsbedingungen gemessen werden müssen.

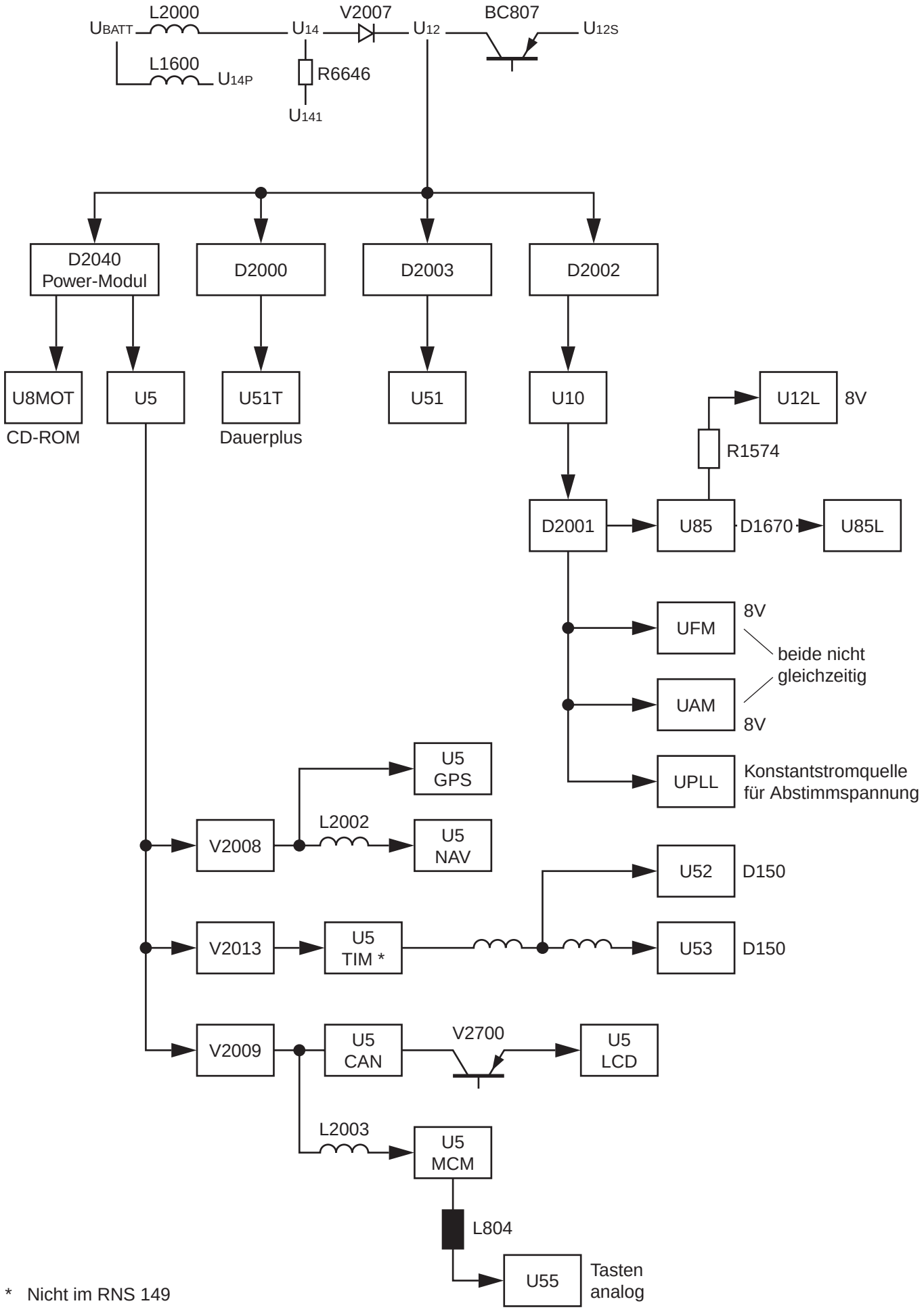
Spannung	Meßpunkt	Nennwert	Toleranz	Umin	Umax	Zu messen wenn
U10	MP111-12	10 V	4%	9.6	10.4	Gerät ein
UPLL	MP_UPLL	9.7 V		9.3		Gerät ein
U85	MP_U85	8.5 V		8.40	8.7	Gerät ein
UAM	MP_U_A	8.5 V		8.40	8.7	Gerät ein, AM-
UFM	MP_U_F	8.5 V		8.40	8.7	Gerät ein, FM-
U85L	MPU85L			U85/2		
U12L	MPU12L			U12S/		
U12S	MPU12S			U12-		
U5	MPU5	5 V	-1%, +2%	4.90	5.1	Gerät ein
U5_MCM	MPU54	5 V		4.90		Gerät ein
U55	MPU55	5 V		4.85		Gerät ein
U5_NAV	MPU5NA	5 V		4.90		Gerät ein
U5_TIM	MPU5TIM	5 V		4.90		Gerät ein
U52	MP_U52	5 V		4.85		Gerät ein
U53	MP_U53	5 V		4.80		Gerät ein
U8_MOT	MP111-17	8 V		7.70	8.30	Gerät ein
U12	MPU12			U14-		
U51T	MPU51T	5 V	2%	4.90	5.1	Dauerspannung
U51	MPU51	5 V	2%	4.90	5.1	Dauerspannung

Stromaufnahme

Zur Strommessung des Gerätes sind die Pins 4 (Kl.30) und 8 (Masse) der Kammer A des Anschlußkastens zu beschalten.

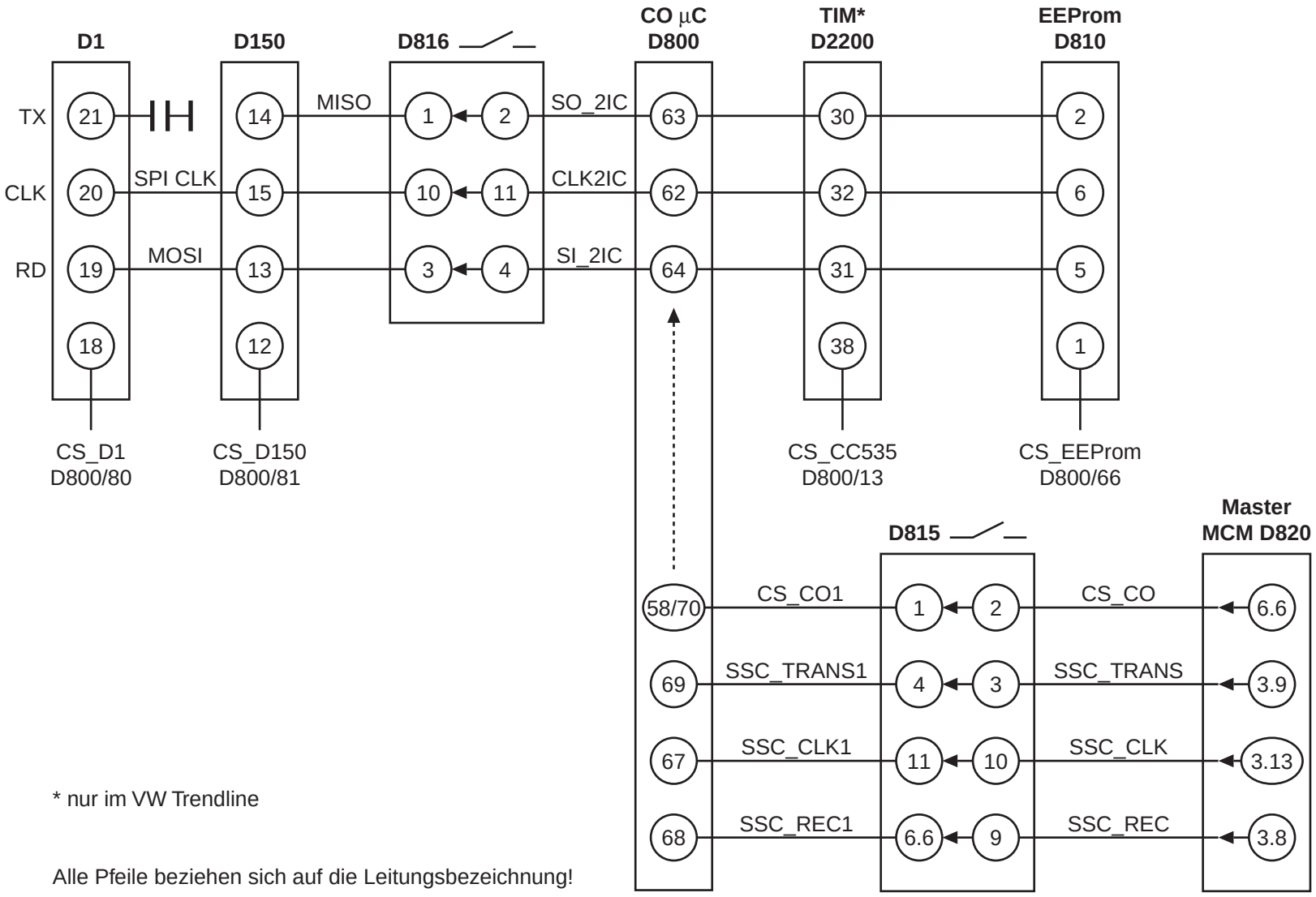
Betriebszustand	Stromaufnahme / mA	Kommentar
Gerät aus	< 3	Gerät muß vorher einmal an gewesen sein, damit CAN-Tranceiver initialisiert wird.
Gerät ein	1000 bis 1100	Bei Erstkontaktierung mit eingelegter NAV-CD.
Gerät ein	ca. 900	NAV-CD im Gerät aber Laufwerk steht. Radiobetrieb (FM).
Gerät ein	ca. 880	Audio-CD im Gerät und läuft. Audio-CD-Betrieb.
NAVI-Nachlauf	< 330	30 Min.
Lüfter an	+ 70 (max.)	Wenn Lüfter voll läuft erhöht sich die Stromaufnahme des Gerätes um max. 70 mA.

Spannungsversorgung



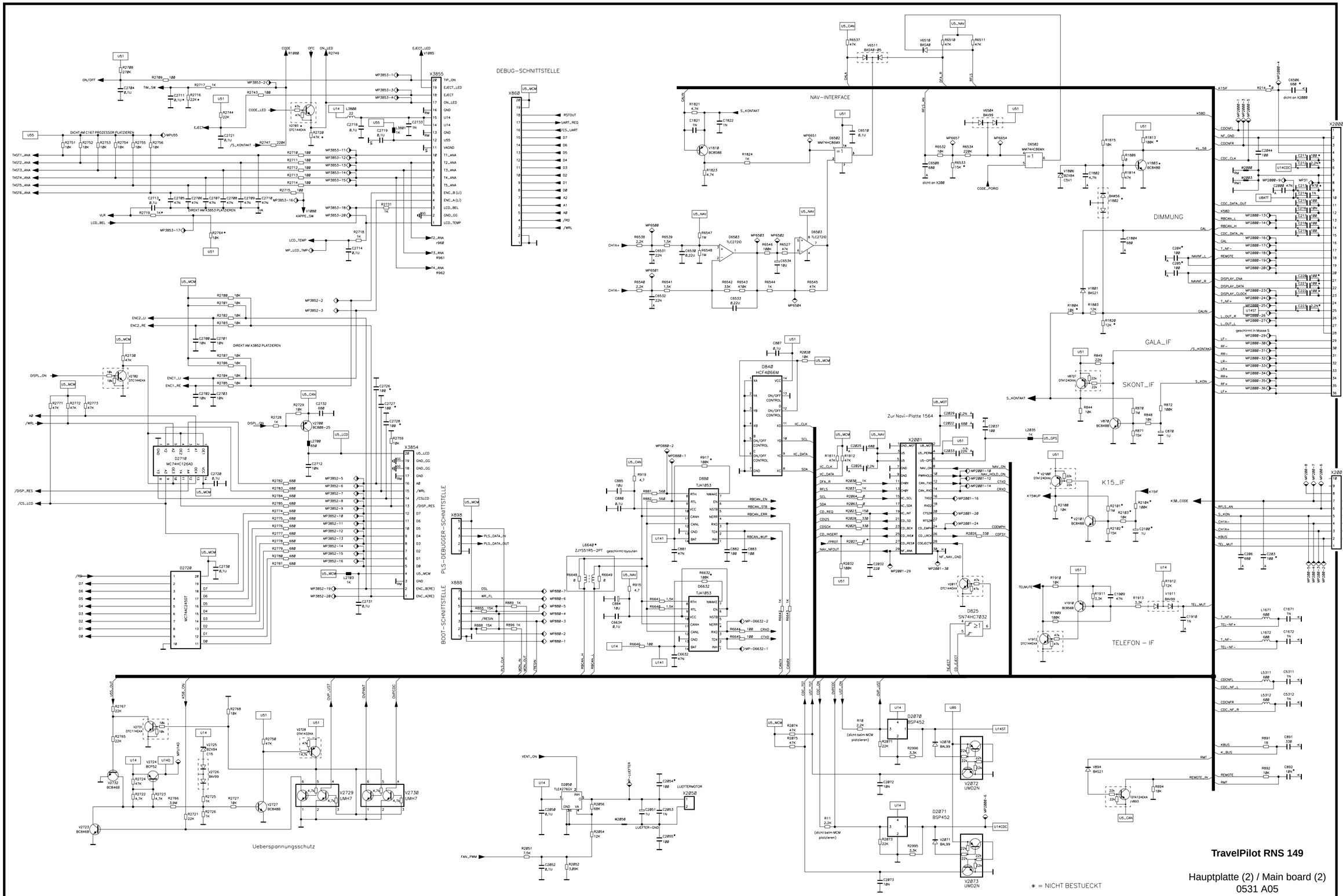
* Nicht im RNS 149

RNS 149 SPI-BUS (Serial Periphery Interface)



* nur im VW Trendline

Alle Pfeile beziehen sich auf die Leitungsbezeichnung!


DEBUG–SCHNITTSTELLE
X860
RSTOUT
UART_REQ
/CS_UART
D7
D6
D5
D4
D3
D2
D1
D0
A2
A1
A0
/RD
/WRL
NAV–INTERFACE
DIMMUNG
GALA_IF
SKONT_IF
K15_IF
TELEFON – IF
DIGITAL–SCHNITTSTELLE
PLS–DEBUGGER–SCHNITTSTELLE
BOOT–SCHNITTSTELLE
Ueberspannungsschutz
Zur Navi–Platte 1564
DIREKT AM C167 PROZESSOR PLATZIEREN
DIREKT AM X3853 PLATZIEREN
DIREKT AM X3852 PLATZIEREN
geschirmt in Masse S
X3855
X3854
X2000
X2001
X2050
X898
X888
TravelPilot RNS 149
Hauptplatte (2) / Main board (2)
0531 A05
✳ = NICHT BESTUECKT

PROCESSOR UNIT

D820

MCM

(MCM-MODUL)

Index B

VW_2

DIAGNOSE-IF

KOMBI-DISPLAY-IF

CD-CHANGER-INTERFACE

TravelPilot RNS 149

Hauptplatte (3) / Main board (3)
0531 A05

✳ = NICHT BESTUECKT

VERKEHRSFUNKSPEICHER

D800
TMS370C16B57

D2200
CC535*

D816
74HC4066

D815
HCF4066M

D2210*
MSM6684

D825
SN74HC7032

D830
74HC7001D

D805
74HC14D

zum MCM/Power/Reset/NAVI

zum 2IC

/PROT

U5_MCM

KBUS_PULL

EJECT / TELMUTE WUP

SKON/INSERT WUP

USPOSP

HP_TEMP

PHANTOM_REF

PHANTOM_DIAG

TI_RESET

ON_TIPPER

CO_RES

ON/OFF

RST_VER

CODE_PORID

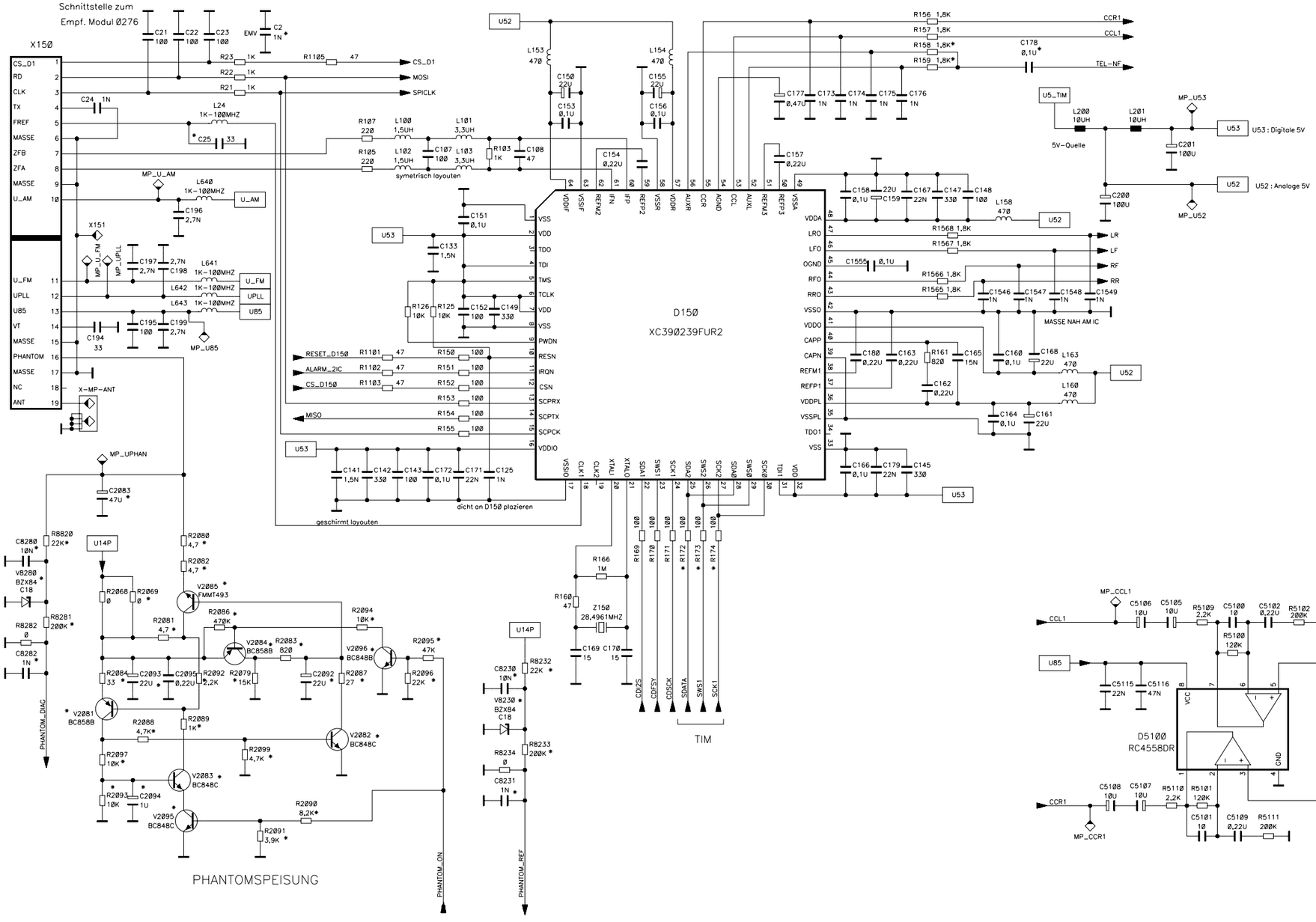
K30_CODE

TIM/K15WUP

∗ = nicht bestueckt

TravelPilot RNS 149

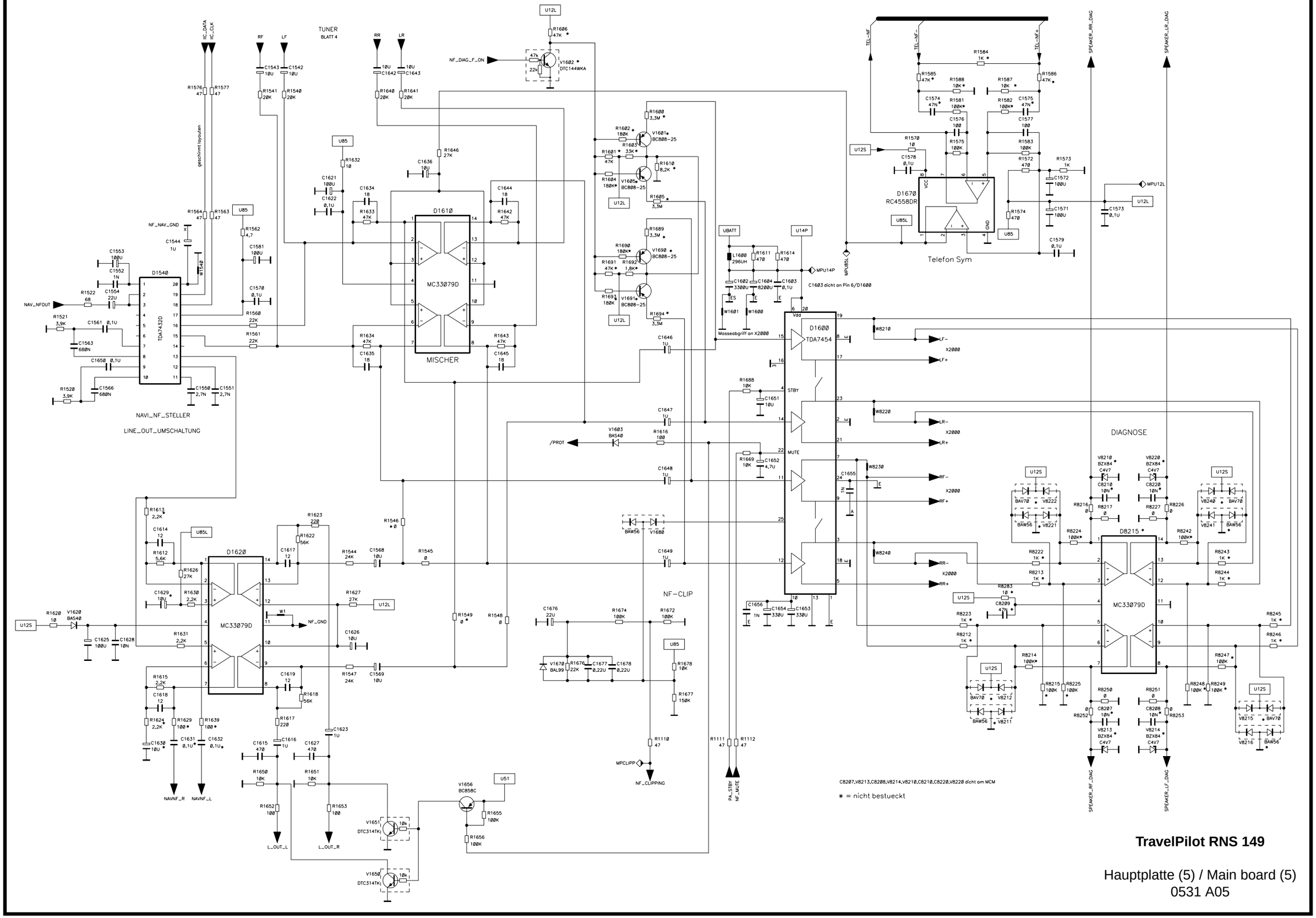
Hauptplatte (1) / Main board (1)
0531 A05



∗ = nicht bestueckt

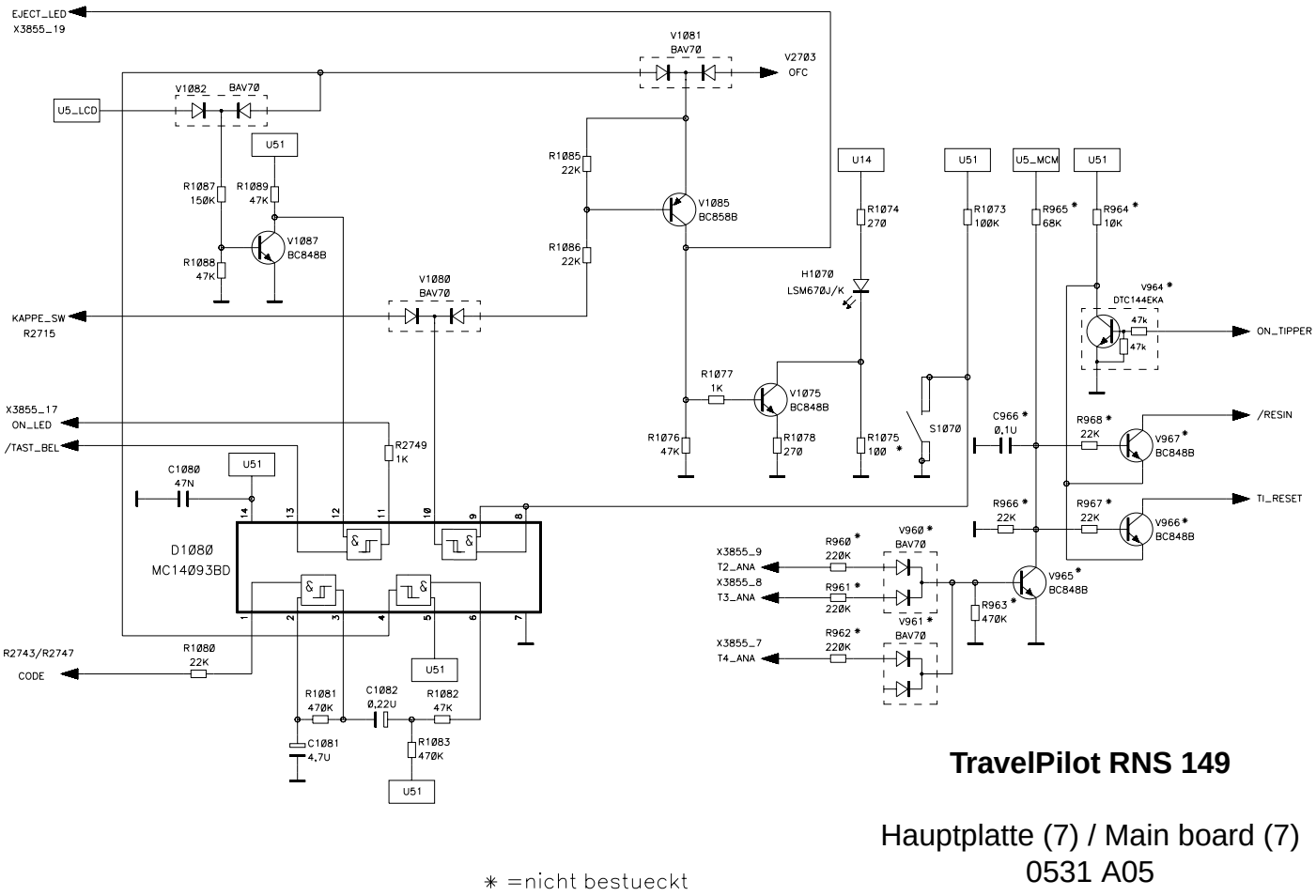
TravelPilot RNS 149

Hauptplatte (4) / Main board (4)
0531 A05



TravelPilot RNS 149

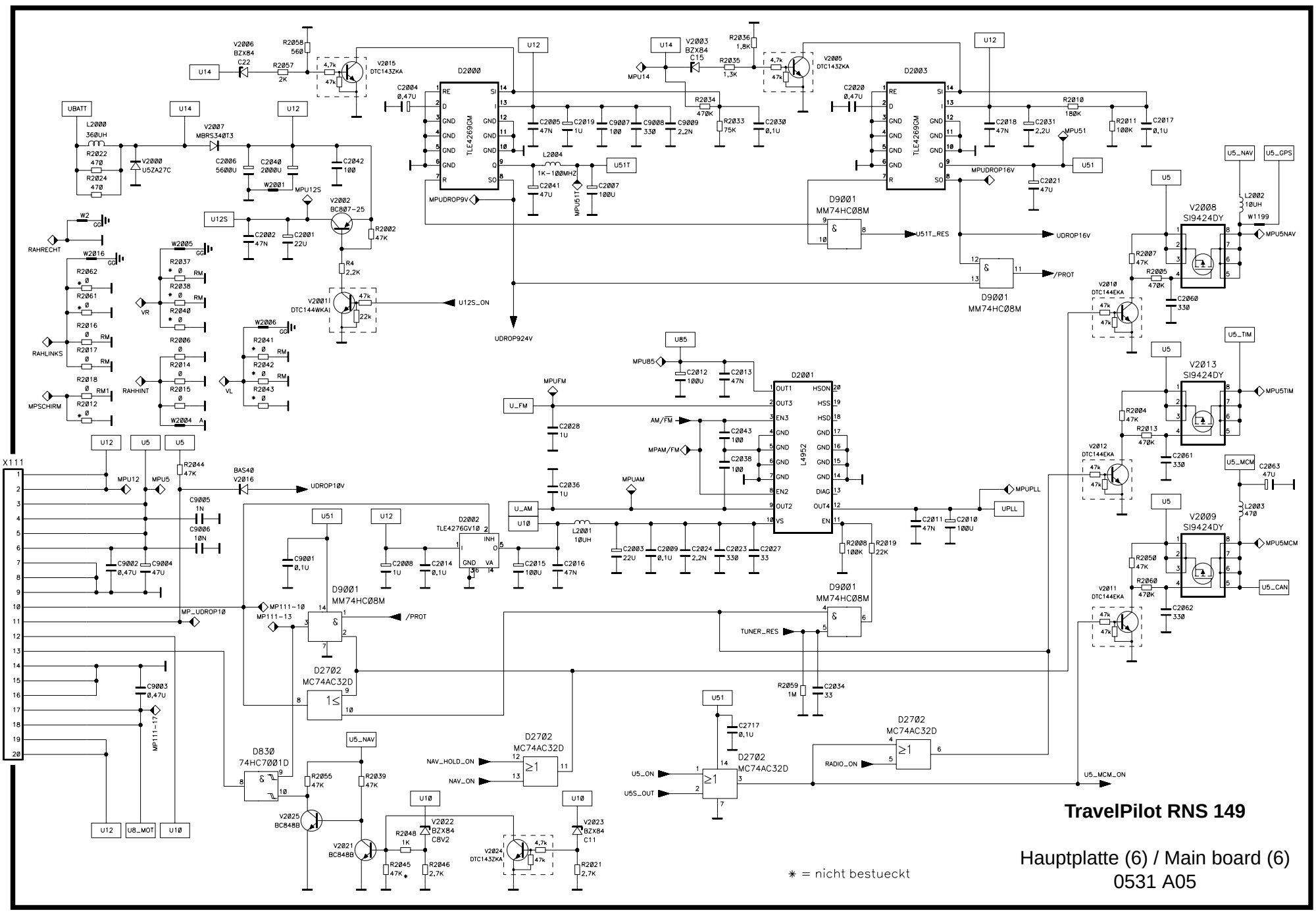
Hauptplatte (5) / Main board (5)
0531 A05



TravelPilot RNS 149

Hauptplatte (7) / Main board (7)
0531 A05

∗ =nicht bestueckt

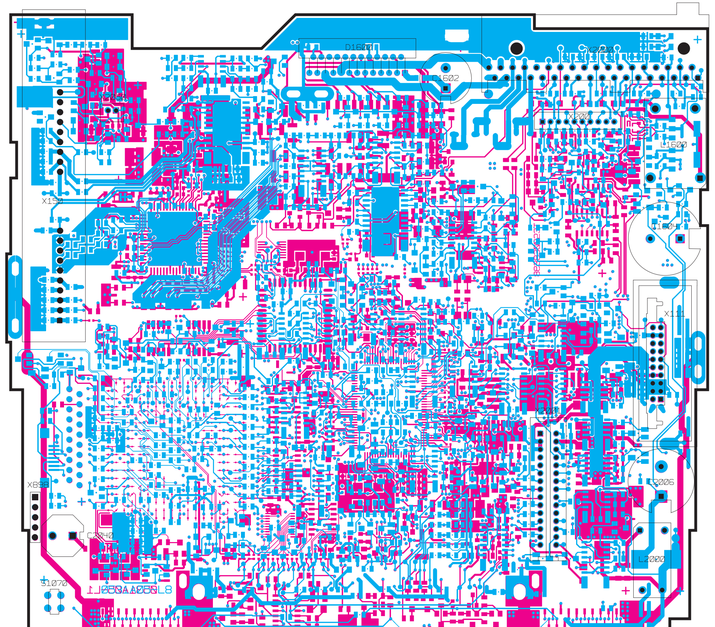


∗ = nicht bestueckt

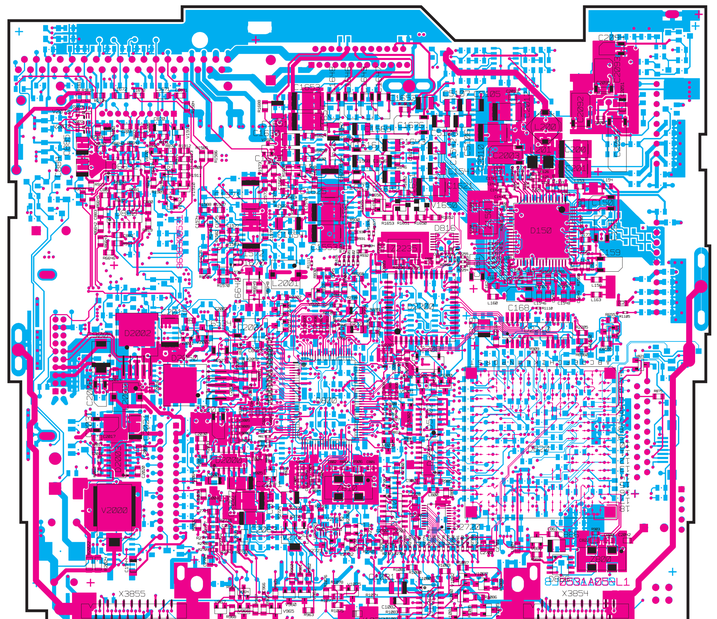
TravelPilot RNS 149

Hauptplatte (6) / Main board (6)
0531 A05

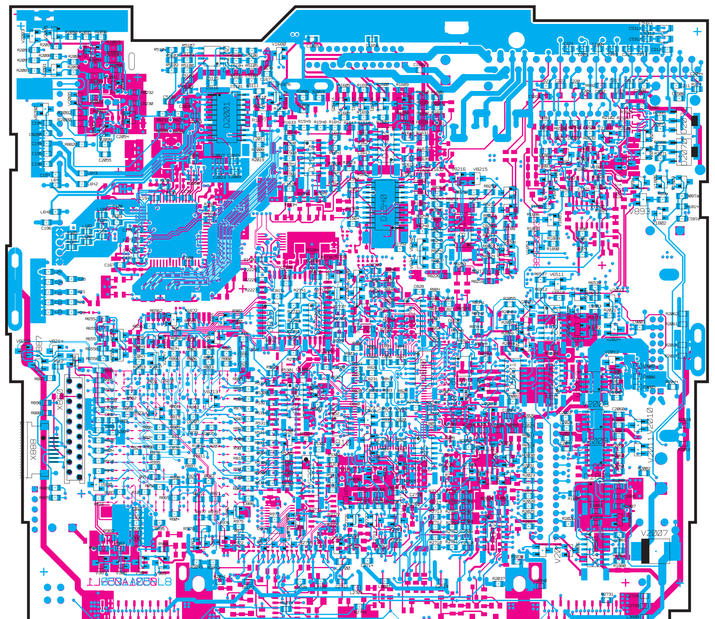
Hauptplatte
Main board
PL 0531 A05

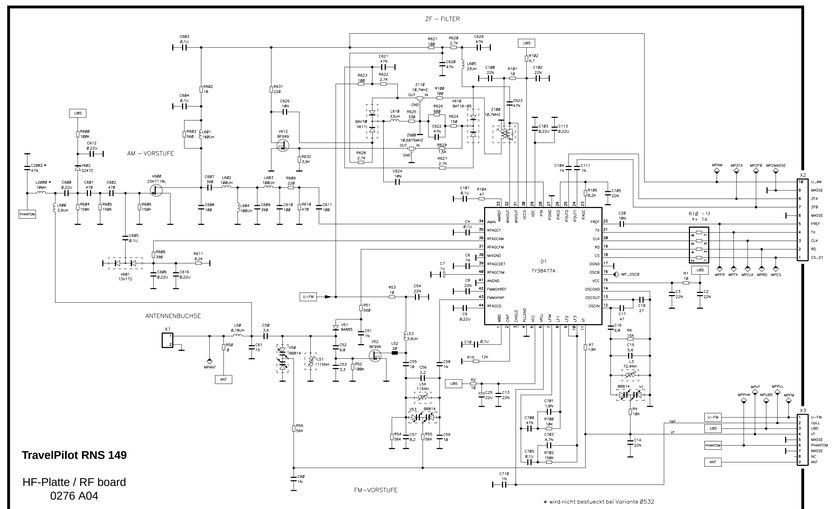


Hauptplatte
Main board
PL 0531 A05
Chip-O



Hauptplatte
Main board
PL 0531 A05
Chip-U + BU

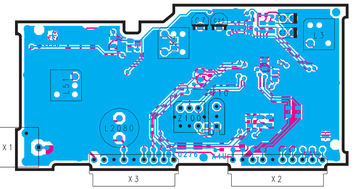




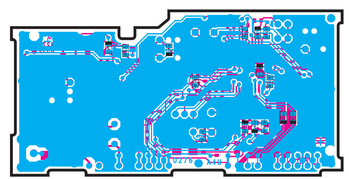
TravelPilot RNS 149

HF-Platte / RF board
0276 A04

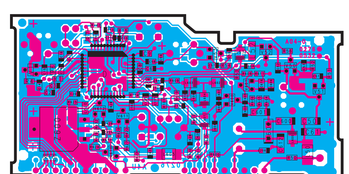
HF-Platte
RF board
PL 0276 A04



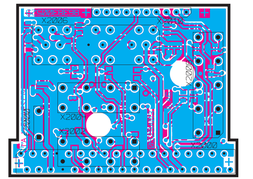
HF-Platte
RF board
PL 0276 A04
Chip



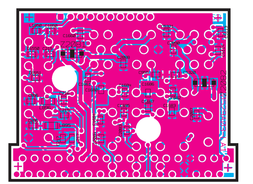
HF-Platte
RF board
PL 0276 A04
Chip



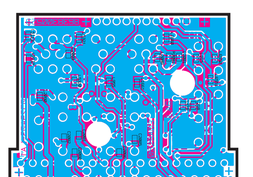
Anschlußplatte
Connector board
PL 0529 A03

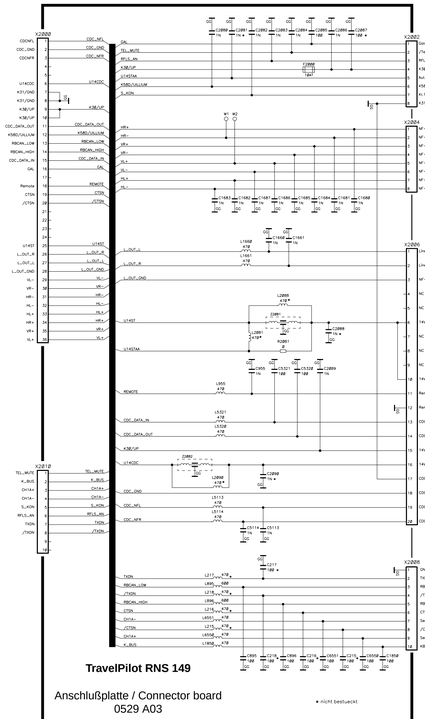


Anschlußplatte
Connector board
PL 0529 A03
Chip



Anschlußplatte
Connector board
PL 0529 A03
Chip





TravelPilot RNS 149

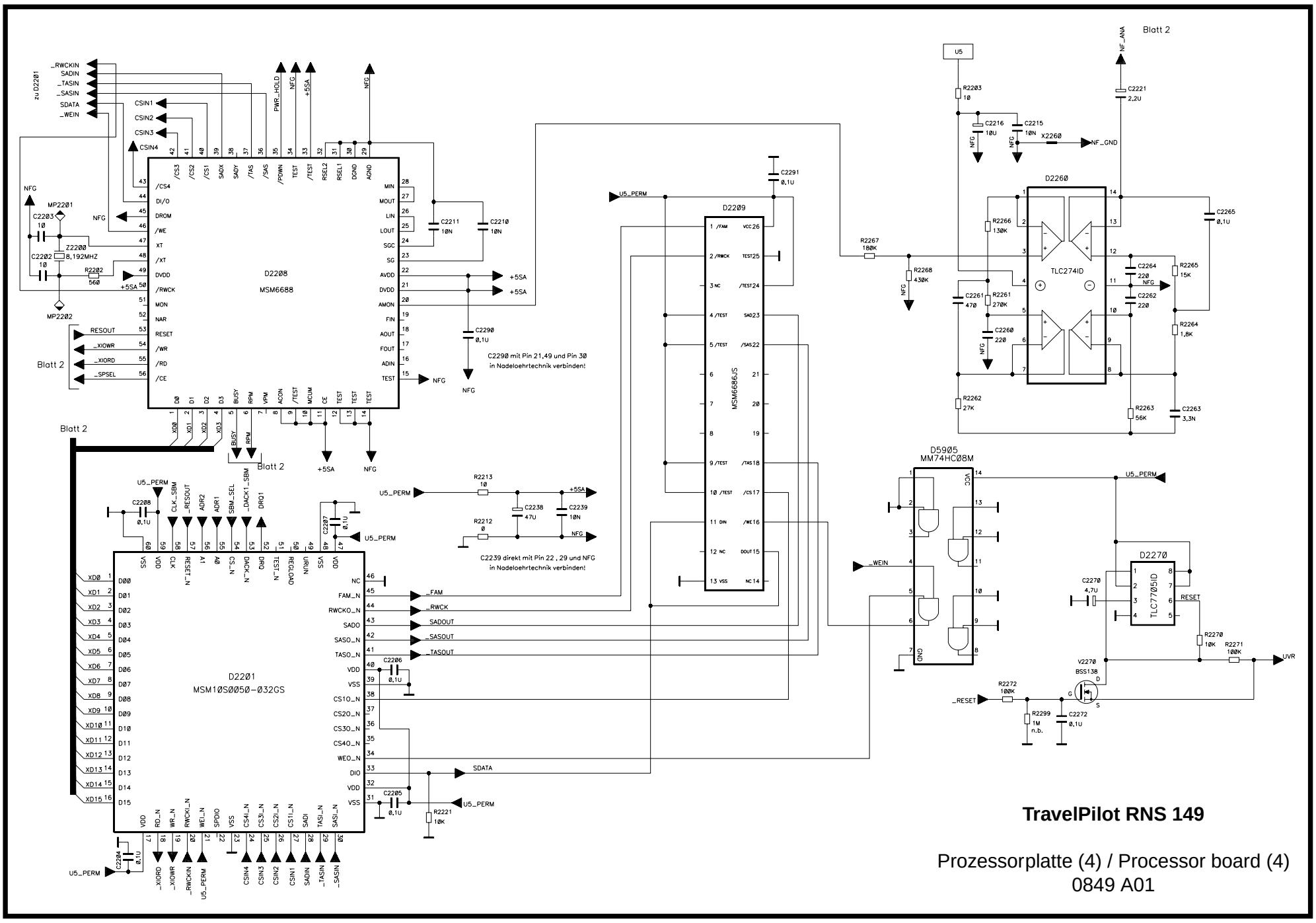
Anschlußplatte / Connector board
0529 A03

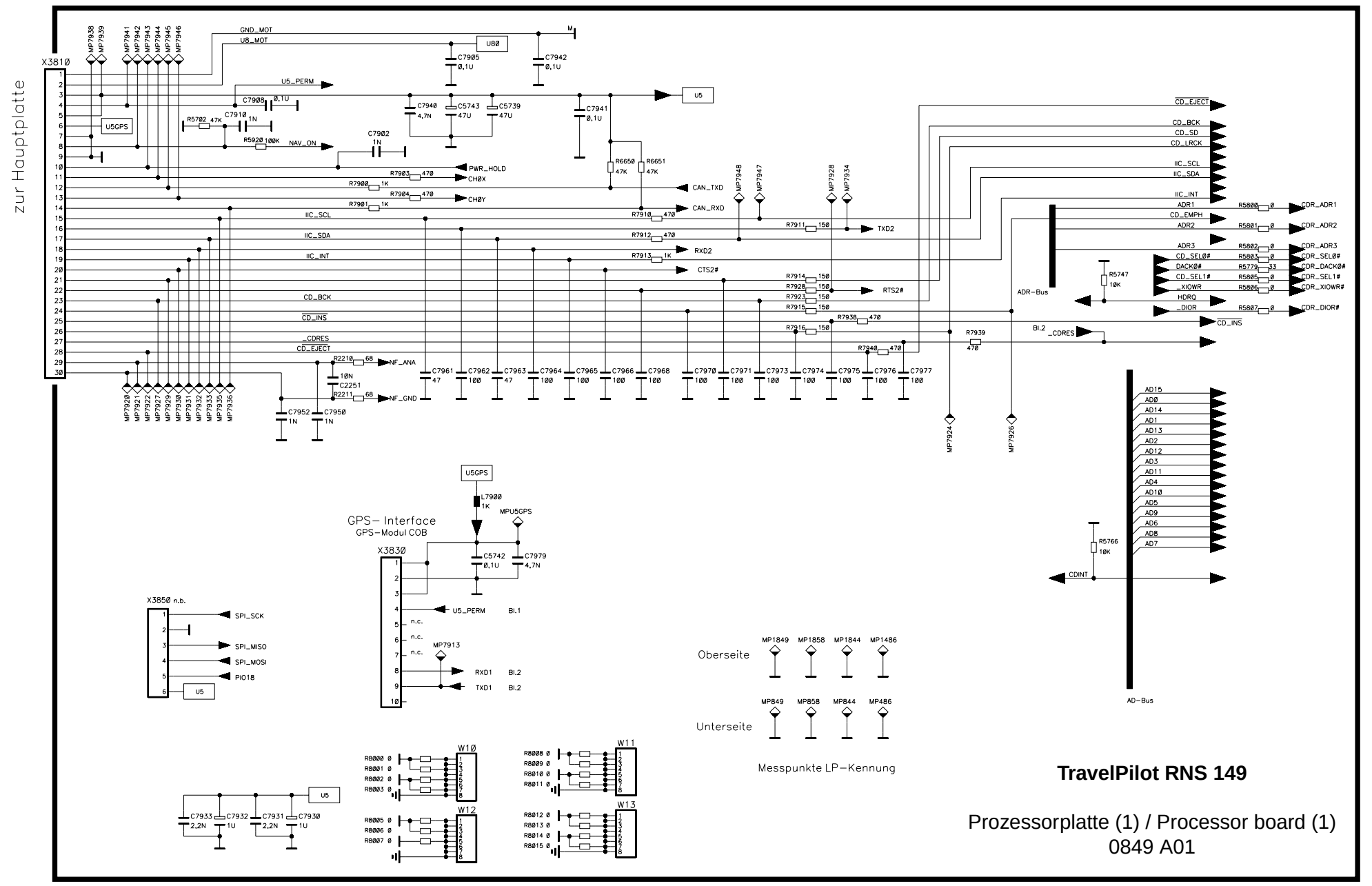
TravelPilot RNS 149

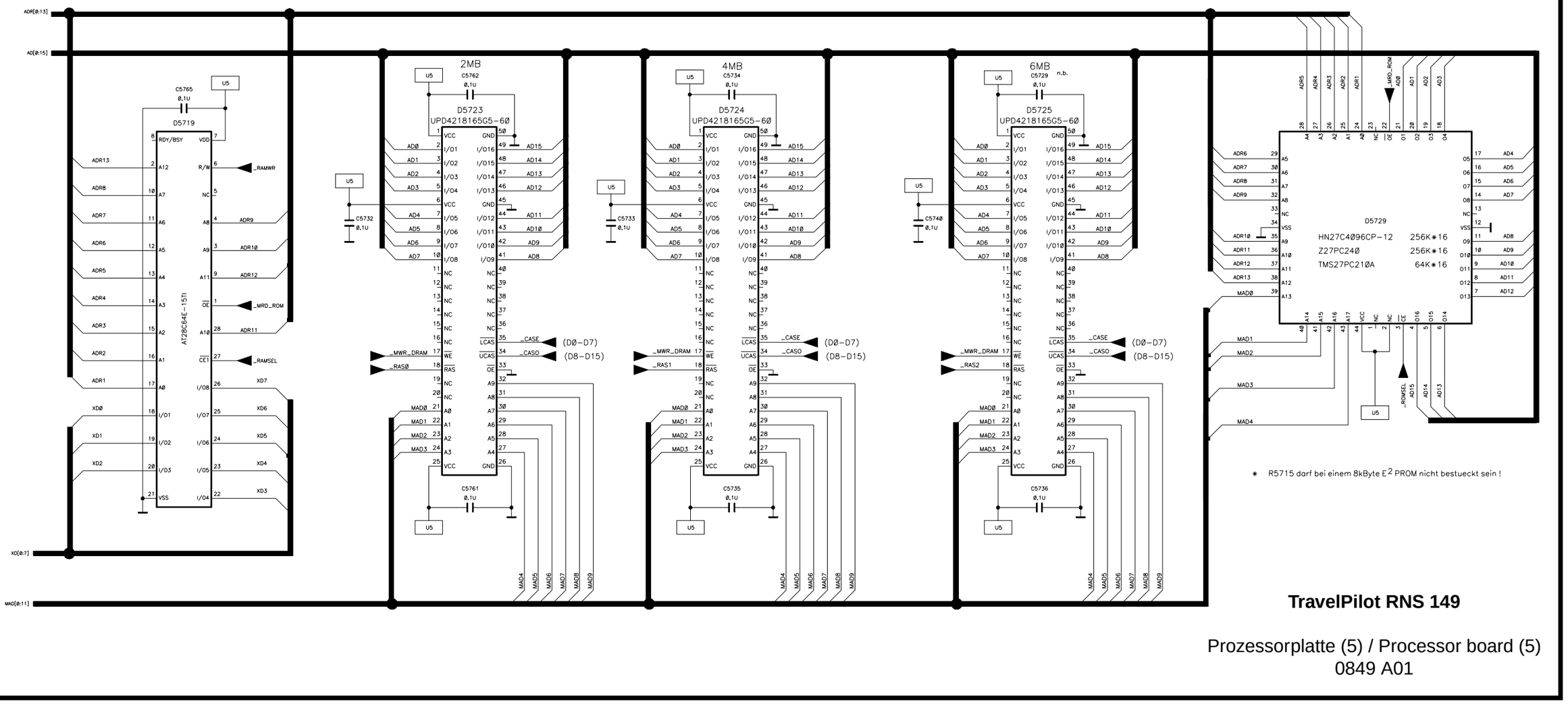
Prozessorplatte (2) / Processor board (2)
0849 A01

TravelPilot RNS 149

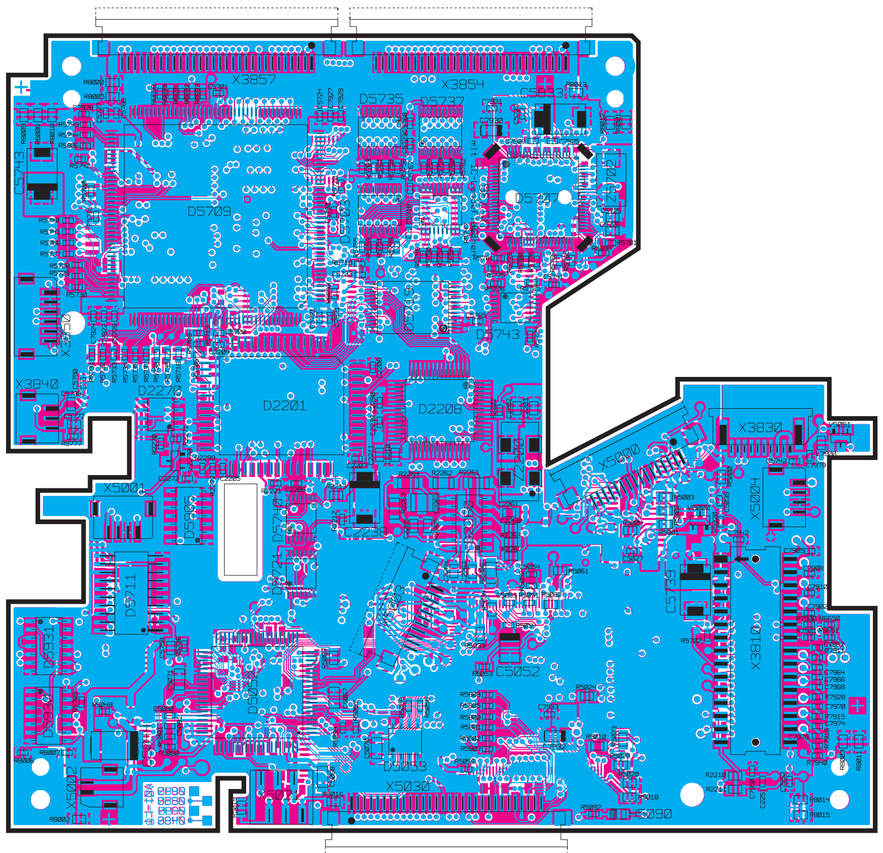
Prozessorplatte (3) / Processor board (3)
0849 A01


D2208
MSM6688
D2209
MSM6686JS
D2201
MSM10S050-032GS
D2260
TLC274ID
D5905
MM74HC08M
D2270
TLC7705ID
U5_PERM
NFG
+5SA
C2290 mit Pin 21,49 und Pin 30 in Nadeloehrtechnik verbinden!
C2239 direkt mit Pin 22 , 29 und NFG in Nadeloehrtechnik verbinden!
Blatt 2
NF_ANA
NF_GND
TravelPilot RNS 149
Prozessorplatte (4) / Processor board (4)
0849 A01

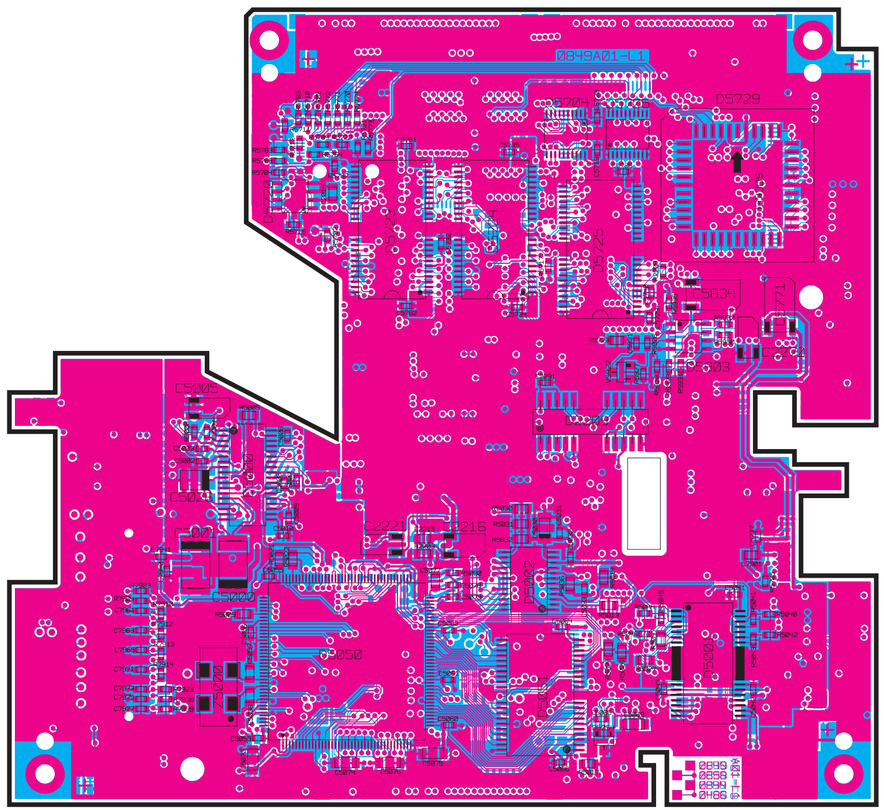

zur Hauptplatte
U5GPS
GPS– Interface
GPS–Modul COB
X3830
X3850 n.b.
Oberseite
Unterseite
Messpunkte LP–Kennung
AD–Bus
ADR–Bus
TravelPilot RNS 149
Prozessorplatte (1) / Processor board (1)
0849 A01

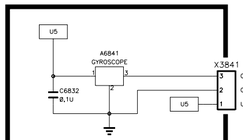

ADR[0:13]
AD[0:15]
D5719
AT28C64E-15TI
C5765
Ø,1U
RDY/BSY
VDD
R/W
_RAMWR
NC
ADR9
ADR1Ø
ADR12
OE
_MRD_ROM
A1Ø
ADR11
CE1
_RAMSEL
XD7
XD6
XD5
XD4
XD3
XD[0:7]
2MB
D5723
UPD4218165G5-6Ø
C5762
C5732
4MB
D5724
C5734
C5733
6MB
n.b.
D5725
C5740
C5729
_CASE
_CASO
(DØ–D7)
(D8–D15)
_MWR_DRAM
_RASØ
_RAS1
_RAS2
C5761
C5735
C5736
MAD[Ø:11]
D5729
HN27C4Ø96CP-12 256K*16
Z27PC24Ø 256K*16
TMS27PC21ØA 64K*16
_MRD_ROM
_ROMSEL
MAD1
MAD2
MAD3
MAD4
* R5715 darf bei einem 8kByte E2 PROM nicht bestueckt sein !
TravelPilot RNS 149
Prozessorplatte (5) / Processor board (5)
0849 A01

Prozessor-Platte
Processor board
PL 0849 A01
Chip



Prozessor-Platte
Processor board
PL 0849 A01
Chip

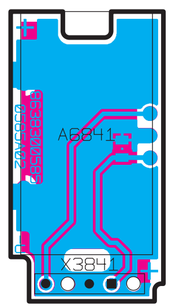




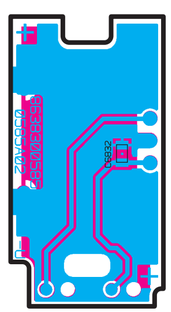
TravelPilot RNS 149

Gyro-Platte / Gyro board
0585 A02

Gyro-Platte
Gyro board
PL 0585 A02



Gyro-Platte
Gyro board
PL 0585 A02
Chip



TravelPilot RNS 149

GPS-Platte / GPS board
8887 A04 V01

D30 DIE
SCORPION

D20 DIE
74HC004/BN

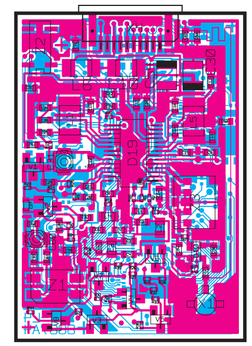
D50 DIE
UM23C4100

D60 DIE
UM62102AC-70-120

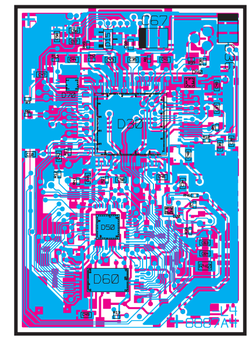
D70 DIE
93LC66

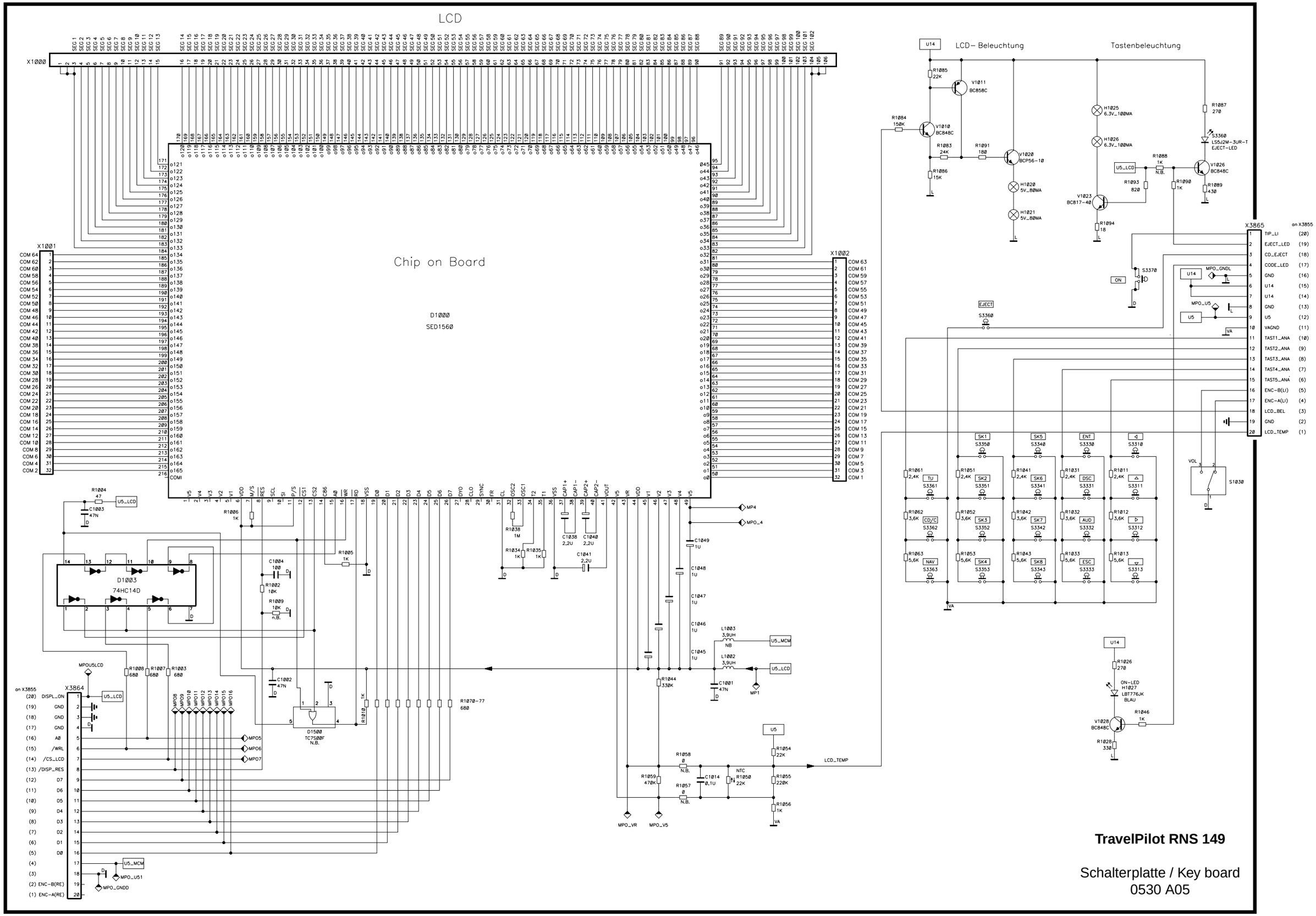
D40 DIE
74HC390

GPS-Platte
GPS board
PL 8887 A04V01
Chip

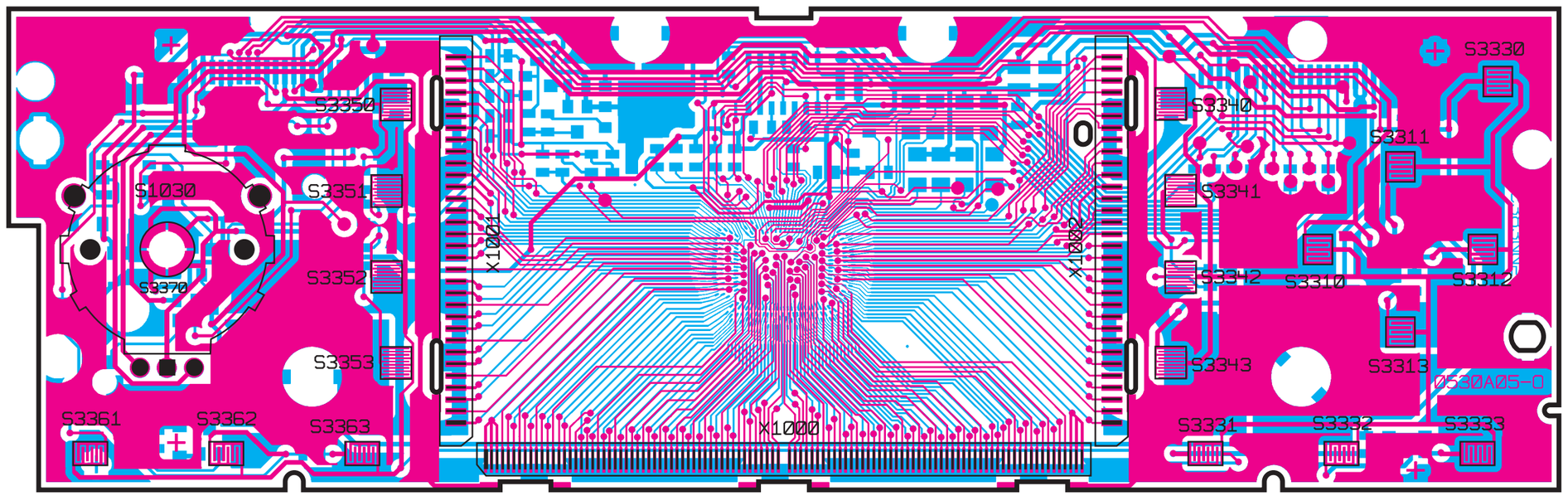


GPS-Platte
GPS board
PL 8887 A04V01
Chip

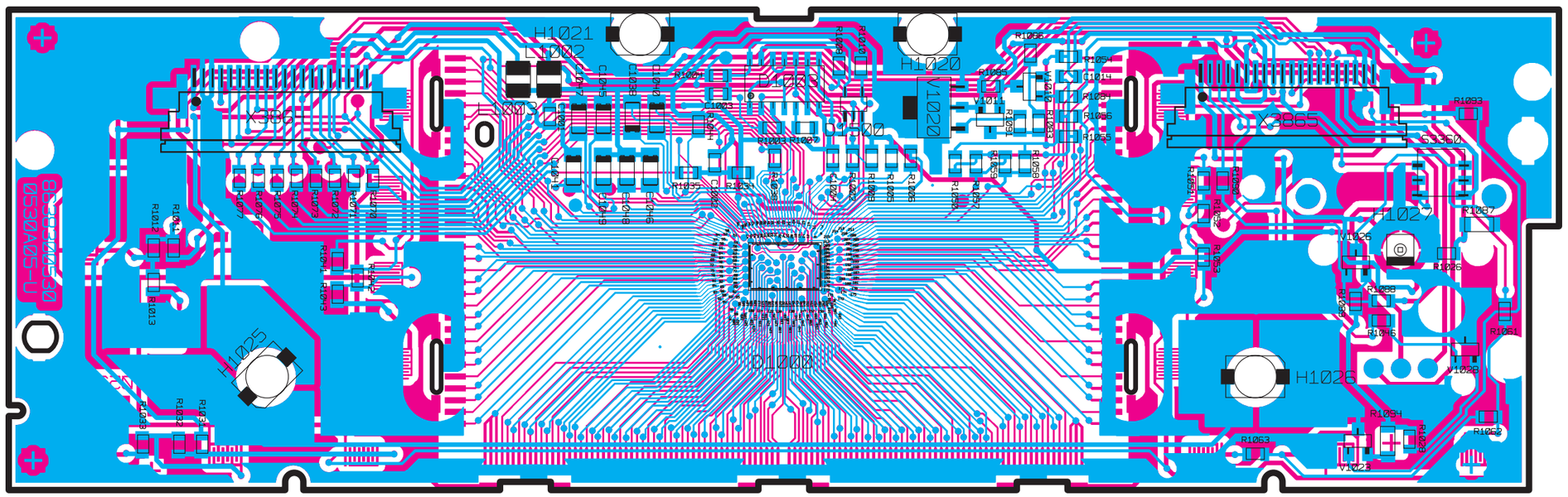


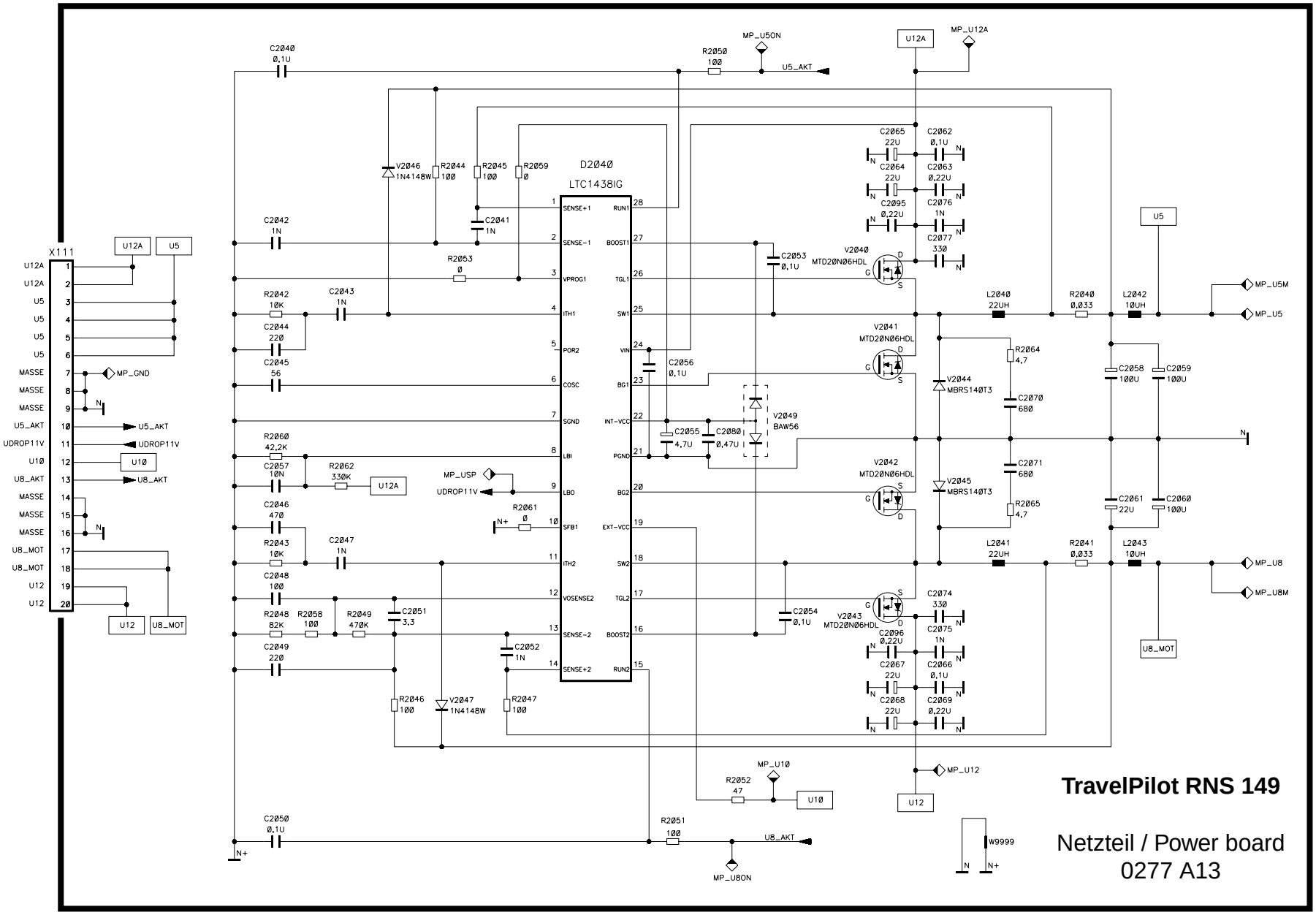

LCD
X1000
X1001
X1002
Chip on Board
D1000
SED1560
LCD– Beleuchtung
Tastenbeleuchtung
U14
R1085 22K
V1011 BC858C
R1084 150K
V1010 BC848C
R1083 24K
R1091 180
V1020 BCP56-10
R1086 15K
H1020 5V_80MA
H1021 5V_80MA
H1025 6.3V_100MA
H1026 6.3V_100MA
R1087 270
S3360 LS52M-3UR-T EJECT-LED
U5_LCD
R1088 1K N.B.
V1026 BC848C
R1093 820
R1090 1K
R1089 430
V1023 BC817-40
R1094 18
S3370
ON
X3865
TIP_LI (20)
EJECT_LED (19)
CD_EJECT (18)
CODE_LED (17)
GND (16)
U14 (15)
U14 (14)
GND (13)
U5 (12)
VAGND (11)
TAST1_ANA (10)
TAST2_ANA (9)
TAST3_ANA (8)
TAST4_ANA (7)
TAST5_ANA (6)
ENC-B(LI) (5)
ENC-A(LI) (4)
LCD_BEL (3)
GND (2)
LCD_TEMP (1)
MPO_GNDL
MPO_U5
U5
VA
EJECT
S3360
SK1 S3350
SK5 S3340
ENT S3330
S3310
R1061 2,4K TU S3361
R1051 2,4K SK2 S3351
R1041 2,4K SK6 S3341
R1031 2,4K DSC S3331
R1011 2,4K S3311
R1062 3,6K CD/C S3362
R1052 3,6K SK3 S3352
R1042 3,6K SK7 S3342
R1032 3,6K AUD S3332
R1012 3,6K S3312
R1063 5,6K NAV S3363
R1053 5,6K SK4 S3353
R1043 5,6K SK8 S3343
R1033 5,6K ESC S3333
R1013 5,6K S3313
VOL
S1030
R1004 47
C1003 47N
R1006 1K
R1005 1K
C1004 100
R1002 10K
R1009 10K n.B.
D1003 74HC14D
R1038 1M
R1034 1K
R1035 1K
C1038 2,2U
C1040 2,2U
C1041 2,2U
MP4
MPO_4
C1049 1U
C1048 1U
C1047 1U
C1046 1U
C1045 1U
L1003 3,9UH NB
L1002 3,9UH
U5_MCM
U5_LCD
R1044 330K
C1001 47N
MP1
R1070–77 680
R1010 1K
D1500 TC7S00F N.B.
C1002 47N
MPOU5LCD
R1008 680
R1007 680
R1003 680
X3864
(20) DISPL_ON
GND
GND
GND
A0
/WRL
/CS_LCD
/DISP_RES
D7
D6
D5
D4
D3
D2
D1
D0
ENC-B(RE)
ENC-A(RE)
MPO_U51
MPO_GNDD
MPO5
MPO6
MPO7
MPO8
MPO9
MPO10
MPO11
MPO12
MPO13
MPO14
MPO15
MPO16
U5
R1054 22K
R1055 220K
R1056 1K
R1058 Ø N.B.
R1059 470K
R1057 Ø N.B.
C1014 Ø,1U
NTC R1050 22K
LCD_TEMP
MPO_VR
MPO_V5
U14
R1026 270
ON-LED H1027 LBT776JK BLAU
V1028 BC848C
R1046 1K
R1028 330
TravelPilot RNS 149
Schalterplatte / Key board
0530 A05

Schalterplatte
Key board
PL 0530 A05
B + Chip

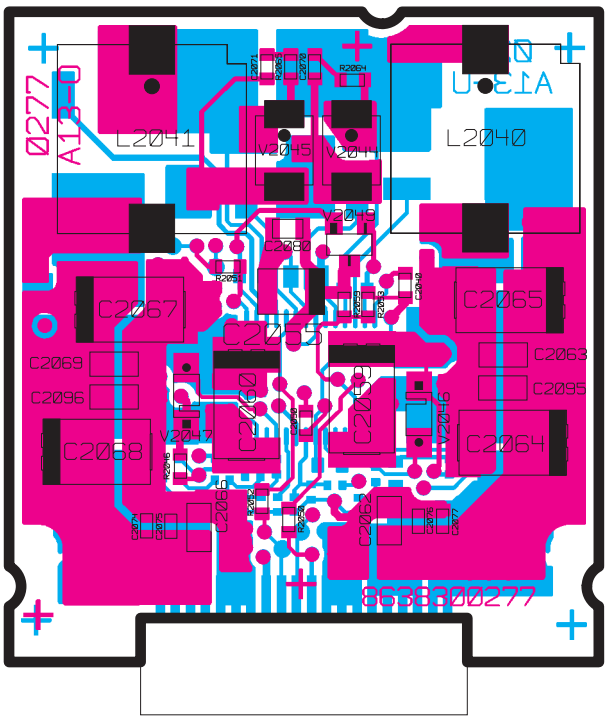


Schalterplatte
Key board
PL 0530 A05
Chip




D2040
LTC1438IG
X111
U12A
U5
U10
U8_MOT
U12
MP_GND
U5_AKT
UDROP11V
U8_AKT
MP_U5ON
MP_U12A
MP_USP
MP_U10
MP_U8ON
MP_U5M
MP_U8
MP_U8M
MP_U12
W9999
TravelPilot RNS 149
Netzteil / Power board
0277 A13

Netzteil
Power board
PL 0277 A13
Chip



Netzteil
Power board
PL 0277 A13
Chip